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(54) PROTON CONDUCTIVE MEMBRANE OR FILM AND FUEL CELL USING THEM

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a proton conductive membrane or film having durability and mechanical strength, a manufacturing method of them, and a fuel cell using them as a proton-exchange membrane.

SOLUTION: The proton conductive membrane is provided which carries a polymer having a phosphoric acid group, a phosphonic acid group, or a phosphinic acid group in the side chain inside voids of a porous membrane. Monomers using the phosphoric acid group, the phosphonic acid group, or the phosphinic acid group are polymerized inside the voids of the porous membrane to manufacture the polymer having the phosphoric acid group, the phosphonic acid group, or the phosphinic acid in the side chain, and the polymer is carried inside the voids of the porous membrane to manufacture the proton conductive membrane. The proton conductive film manufactured by blocking a part or the whole of the remaining voids in the proton conductive membrane and its manufacturing method are provided. In addition to them, the fuel cell using the proton conductive membrane or film as the proton-exchange membrane is provided.